

AMENDMENTS TO THE CLAIMS

1-6. Cancelled

7. (Previously presented) A method for identifying an inhibitor of Abeta-42 formation comprising the following steps:

a) determining whether a given test compound binds to a fatty acid $\Delta 6$ desaturase (FADS2), and

b) determining whether the compound identified in step a) is capable of modulating gamma secretase activity to reduce Abeta-42 formation, thereby identifying an inhibitor of Abeta-42 formation.

8. (Cancelled).

9. (Currently amended) The method of claim 8, wherein the interaction of the test compound with FADS2 results in an inhibition of FADS2 activity.

10. (Previously presented) The method of claim 7, wherein in step b) the ability of gamma secretase to cleave amyloid precursor protein (APP) is measured.

11-68. (Cancelled).

69. (Previously presented) The method of claim 7, wherein the FADS2 comprises an amino acid sequence having at least 90% sequence identity to SEQ ID NO: 76.

70. (Previously presented) The method of claim 7, wherein the FADS2 comprises an amino acid sequence having at least 95% sequence identity to SEQ ID NO: 76.

71. (Previously presented) The method of claim 7, wherein the FADS2 comprises the amino acid sequence depicted in SEQ ID NO: 76.

72. (New) A method for identifying an inhibitor of Abeta-42 formation comprising the following steps:

a) determining whether a given test compound binds to a fatty acid $\Delta 6$ desaturase (FADS2), and

b) determining whether the compound identified in step a) is capable of inhibiting gamma secretase activity to reduce Abeta-42 formation, thereby identifying an inhibitor of Abeta-42 formation.

73. (New) The method of claim 72, wherein in step b) the ability of gamma secretase to cleave amyloid precursor protein (APP) is measured.

74. (New) The method of claim 72, wherein the FADS2 comprises an amino acid sequence having at least 90% sequence identity to SEQ ID NO: 76.

75. (New) The method of claim 72, wherein the FADS2 comprises an amino acid sequence having at least 95% sequence identity to SEQ ID NO: 76.

76. (New) The method of claim 72, wherein the FADS2 comprises the amino acid sequence depicted in SEQ ID NO: 76.